CLAIMS

We claim:

1.   A method for lossy compression of at least a portion of an input audio signal, the method comprising:

encoding frames of the input audio signal using lossy coding based on a lapped transform;

for a frame of the input audio signal for which said lossy coding fails to meet an acceptable compression performance criteria, encoding the frame via a coding processing comprising:

processing the frame to effect the lapped transform and an inverse of the lapped transform of the frame; and

losslessly compressing the frame.

2.   The method of claim 1 wherein said lossy coding comprises non-rectangular windowing, and said coding processing also comprises the non-rectangular windowing.

3.   The method of claim 1 wherein said non-rectangular windowing uses a sine windowing function.

4.   A digital signal encoder for lossy compression of an input signal, comprising:

a lossy codec for encoding frames of the input signal using lossy coding based on a lapped transform;

a mixed lossless codec operative when a frame of the input signal for which said lossy coding fails to meet an acceptable compression performance criteria, to encode the frame using another coding comprising processing the frame to effect the lapped transform and an inverse of the lapped transform of the frame, and losslessly compressing the frame.

5.   The digital signal encoder of claim 4 wherein said lossy coding comprises non-rectangular windowing, and said other coding also comprises the non-rectangular windowing.

6.   The digital signal encoder of claim 5 wherein said non-rectangular windowing uses a sine windowing function.

7.   A computer-readable medium having computer-executable software code carried thereon for executing on a computing device to effect a method for lossy compression of at least a portion of an input audio signal, the method comprising:

encoding frames of the input audio signal using lossy coding based on a lapped transform;

for a frame of the input audio signal for which said lossy coding fails to meet an acceptable compression performance criteria, encoding the frame via a coding processing comprising:

processing the frame to effect the lapped transform and an inverse of the lapped transform of the frame; and

losslessly compressing the frame.

8.   The computer-readable medium of claim 7 wherein said lossy coding comprises non-rectangular windowing, and said coding processing also comprises the non-rectangular windowing.

9.   The computer-readable medium of claim 7 wherein said non-rectangular windowing uses a sine windowing function.

10.   A method for mixed lossless compression of an input audio signal, the method comprising:

applying a windowing function on the input audio signal;

applying a lapped transform and its inverse transform which support perfect reconstruction to generate a pseudo time domain signal; and

losslessly compressing the pseudo time domain signal;

wherein the mixed lossless compression is lossless if the windowing function is reversible, and otherwise is lossy.

11.   The method of claim 10 wherein the windowing function is rectangular in shape.

12.   The method of claim 10 wherein the windowing function is non-rectangular in shape.

13.   The method of claim 10 wherein the windowing function is part-rectangular part non-rectangular in shape.

14.   A method for creating pseudo time domain signal to switch the coding from lapped transform based codec to time domain codec for one or more particular frames, the method comprising:

applying a windowing function on the input audio signal;

applying a lapped transform and its inverse transform to generate a pseudo time domain signal; and

using a time domain codec to compress the pseudo time domain signal;